



# University Reactor Infrastructure and Education Assistance Support

Office of Nuclear Energy  
U. S. Department of Energy

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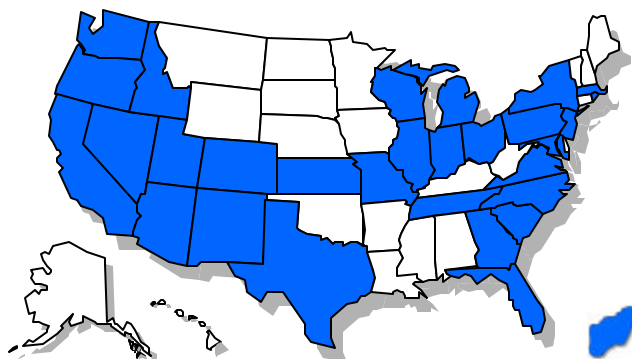
**University Nuclear Infrastructure (UNI).** This program brings together several program elements supporting the increasingly vital university nuclear engineering infrastructure. Program elements include:

- **Innovations in Nuclear Infrastructure and Education (INIE).** This program strengthens the Nation's university nuclear engineering education programs through innovative use of the university research and training reactors and encouraging strategic partnerships among the universities, the DOE national laboratories, and U.S. industry. Currently there are 6 university consortia providing support for 35 universities under the INIE program.
- **Reactor Fuel Assistance.** The Department provides fresh fuel to, and takes back spent fuel from, university research reactors. There are currently 27 operating university research reactors at 26 institutions in the United States. Many of these facilities have permanent fuel cores and therefore do not require regular fuel shipments. However, DOE supplies approximately a dozen universities with fresh fuel and shipments of spent fuel as needed. These reactors are unique and irreplaceable assets for technical education and are used for a variety of research, educational and training purposes. This activity will continue to be funded in FY 2007 under the Research Reactor Infrastructure program in the Radiological Facilities Management budget.
- **Reactor Upgrades.** The Department provides assistance to universities to improve the operational and experimental capabilities of their research reactors. Grants are provided to the universities to purchase equipment and services necessary to upgrade the reactor facilities, such as reactor instrumentation and control equipment, data

recording devices, radiation, security, and air monitoring equipment, and gamma spectroscopy hardware and software. Each year up to 22 universities receive this assistance.

- **Reactor Sharing.** Through this assistance effort, the Department enables universities with reactors to "share" access to their facilities with students and faculty at other institutions who lack such a facility. The reactors are made available for use in research, experiments, material irradiations, neutron activation analysis and training, and for facility tours and other educational activities.

**Nuclear Engineering Education Research (NEER) Grants.** This highly competitive peer-reviewed program provides for grants to nuclear engineering faculty and students for innovative research in nuclear engineering and related areas. The awards run from one to three years and are granted in nine separate technical areas related to nuclear engineering: reactor physics, reactor engineering, reactor materials research, radiological engineering, radioactive waste management,



## Program Participants

Clark Atlanta University\*  
Clemson University  
Colorado State University  
Georgia Institute of Technology  
Idaho State University  
Kansas State University  
Livingstone College\*  
Linn State Technical College  
Massachusetts Institute of Technology  
Morgan State University\*  
New Mexico State University\*\*  
North Carolina State University  
Ohio State University  
Oregon State University  
Pennsylvania State University  
Polytechnic University of Puerto Rico\*\*  
Prairie View A&M University\*

Purdue University  
Reed College  
Rensselaer Polytechnic Institute  
Rhode Island Nuclear Science Center  
South Carolina State University\*  
Texas A&M University  
Texas A&M Kingsville\*\*  
Three Rivers Community College  
Tuskegee Institute\*  
University of Arizona  
University of California-Berkeley  
University of California-Davis  
University of California-Irvine  
University of Cincinnati  
University of Florida  
University of Illinois  
University of Maryland

University of Massachusetts-Lowell  
University of Michigan  
University of Missouri-Columbia  
University of Missouri-Rolla  
University of Nevada - Las Vegas  
University of New Mexico\*\*  
University of South Carolina  
University of Tennessee  
University of Texas  
University of Utah  
University of Virginia  
University of Wisconsin  
Washington State University  
West Point Military Academy  
Wilberforce University\*  
Worcester Polytechnic Institute

\*U.S. Historically Black Colleges and Universities; \*\*Hispanic Serving Institution

applied radiation science, nuclear safety and risk analysis, innovative technologies, and health physics.

**DOE/Industry Matching Grants.** The Department of Energy and participating companies provide matching funds, up to \$60,000 from each side, to universities for use in funding scholarships, improving nuclear engineering and science curricula, and modernizing experimental and instructional facilities. Typically 20-25 universities receive funding each year.

**Nuclear Engineering/Health Physics Fellowships and Scholarships to Nuclear Science and Engineering Programs at Universities.** The Department provides tuition, stipends, and practicums to outstanding graduate students studying nuclear engineering and health physics and undergraduate scholarships and practicums to students pursuing a nuclear engineering course of study. As an element of this activity, the University Partnership Program pairs minority institutions with institutions offering a nuclear engineering degree to enable more minorities to enter the field of nuclear engineering. To date, 13 institutions have partnered in this innovative program.

**Radiochemistry.** The Department awards three-year grants to support education activities in the field of radiochemistry in the United States. Radiochemistry is linked to several national priorities including medicine, energy and national defense. In FY 2006, the program will continue 3 radiochemistry awards and award 3-5 Junior Faculty awards.

**Nuclear Engineering and Science Education Recruitment Program.** This program is designed to increase the number of students entering a university nuclear engineering course of study by developing a core curriculum to instruct high school science teachers in nuclear science and engineering topics.

**Summer Internships at National Laboratories.** The Office of Nuclear Energy offers summer internships in technical areas related to nuclear

engineering at the Idaho National Laboratory, the Argonne National Laboratory, and the Oak Ridge National Laboratory to undergraduate and graduate students. Each student works with a mentor and receives living expenses and a salary for the 10-12 week program.

**International Student Exchange Program (ISEP).** The ISEP sponsors U.S. students studying nuclear engineering to spend 3-4 months abroad doing research at nuclear facilities in Germany, France, and Japan. These three countries send their students to the U.S. for reciprocal internships at DOE national laboratories.

#### **FY 2006 Planned Accomplishments**

- Fund the 6 INIE awards.
- Fund upgrades and improvements at approximately 17 research reactors.
- Award approximately 15 fellowships to nuclear engineering M.S. and Ph.D. students.
- Award approximately 67 scholarships to undergraduates at majority and minority institutions pursuing a nuclear engineering degree.
- Award 3 Health Physics Fellowship Program.
- Partner with industry to award 18-20 matching grant awards.
- Fund 3 Radiochemistry grants and award 1 new grant.

#### **Program Budget University Reactor Fuel Assistance and Support (\$ in Millions)**

FY 2006	FY 2007
<u>Appropriation</u>	<u>Request</u>
\$27.0	\$0.00*

\*In FY 2007, no funding is being requested for this program. The Radiological Facilities Management program includes \$2.9M for the Research Reactor Infrastructure program, to provide fuel to and to ship spent fuel from university research reactors.

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